

REMARKS

The present invention relates to a curable resin composition, an adhesive epoxy paste, and products obtained therefrom.

In the Office Action of August 21, 2008, claims 1-12, 14-27 and 30-33 were rejected, and claims 13, 28 and 29 were withdrawn from consideration. Claims 18-22, 25-27 and 30-33 were rejected under 35 U.S.C. § 112, second paragraph, with the Examiner considering the term “obtainable” to be indefinite and indicating the term “obtained” as being more appropriate. Claim 12 was rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for the reason stated at page 4 of the Office Action.

Claims 1-6, 12, 14-27 and 30-33 were rejected under 35 U.S.C. § 102(b) or alternatively under 35 U.S.C. § 103(a) based on JP 2002-241584 (Yasigawa). Lastly, claims 7-11 were rejected under 35 U.S.C. § 103(a) based on WO 00/78887 (≈USP 6,673,441) (Tanaka) in view of WO 01/74962 (≈USP 7,070,670) (Tomiyami).

Hereinabove, claims 1, 7, 9, 11, 12, 14, 18, 20, 21, 22, 25, 26, 31 and 32 have been amended, including responsive to the Examiner’s indications in the Office Action; claim 10 has been canceled. Independent claim 1 has been amended to incorporate from claim 7, and claim 7 and other claims have been amended accordingly.

Based thereon and on the remarks below, Applicant respectfully submit that claims 1-9, 11-12, 14-27 and 30-33 are now in condition for allowance.

Claim Rejections - 35 U.S.C. § 112

Regarding claim 12, Applicant respectfully does not agree with the Examiner. “A low elastic modulus substance” is an additional component. Thus there is no contradiction. However,

to obviate any issue, Applicant has deleted the recitation “the low elastic modulus substance being dispersed like an island in non-compatible state with the epoxy resin and the solid polymer having the functional group to react with the epoxy group”.

Claim Rejections-35 U.S. C. § 102/103

The Yagisawa reference discloses a resin paste for the semiconductor characterized in that (A) an epoxy resin, (H) a curing agent, (C) a stress-reducing agent and (D) a filler are contained as essential components, wherein the stress-reducing agent is a compound having a hydroxy group at the molecular terminal and is capable of being uniformly dispersed without causing phase separation when it is mixed with the epoxy resin and curing agent, and then cured, and the amount of the stress-reducing agent is 3 - 100 pts.wt. based on 100 pts.wt. of the epoxy resin.

However, the “(C) a stress-reducing agent” of Yagisawa is not same as “a high molecular polymer having an epoxy group” in accordance with the presently claimed invention. Please see columns [0013] to [0015] of Yagisawa. All of the “stress-reducing” agents described in Yagisawa are not high molecular polymers, and do not have an epoxy group. It is clear that “a high molecular polymer having an epoxy group” in accordance with the presently claimed invention is not included in Yagisawa’s “stress-reducing agent”. Thus Yagisawa fails to disclose “a high molecular polymer having an epoxy group”.

Tanaka discloses an adhesive comprising (1) an epoxy resin and a hardener therefor, (2) an epoxidized acrylic copolymer having a glycidyl (meth)acrylate unit content of 0.5 to 6 wt.%, a glass transition temperature Tg of - 10 DEG C or higher and a weight average molecular weight of “100,000 or more”, and (3) a latent curing accelerator.

However (2) an epoxidized acrylic copolymer having a glycidyl (meth)acrylate unit content of 0.5 to 6 wt.%, a glass transition temperature Tg of -10 DEG C or higher and a weight average molecular weight of 100,000 or more" of Tanaka is not the same as presently claimed invention "wherein the high molecular polymer having an epoxy group has an epoxy equivalent of 200 to 1,000". The epoxy equivalent of the epoxidized acrylic copolymer of Tanaka is larger than that of the present invention. Please see the calculations below.

- (a) In the case glycidyl (meth) acrylate unit content is 0.5 wt. % and a weight average molecular weight is 100,000:
the weight of glycidyl (meth)acrylate unit content = $100,000 \times 0.5\% = 500$
the number of glycidyl (meth)acrylate unit content = $500/142 = 3.52$
the epoxy equivalent = $100,000/3.52 = \underline{28,409}$
- (b) In case glycidyl (meth) acrylate unit content is 6 wt. % and a weight average molecular weight is 100,000:
the weight of glycidyl (meth)acrylate unit content = $100,000 \times 6\% = 6000$
the number of glycidyl (meth)acrylate unit content = $6000/142 = 42.25$
the epoxy equivalent = $100,000/42.25 = \underline{2,367}$

Indeed, "an epoxidized acrylic rubber (molecular weight: 1,000,000, glycidyl methacrylate unit content: 1 wt.%, Tg:-70 DEG C., trade name: HTR-860P-3 produced by Teikoku Kagaku Sangyo Co., Ltd.) was used in the Examples of Tanaka. The epoxy equivalent of this epoxidized acrylic rubber is 14,200. The epoxy equivalent of the epoxidized acrylic copolymer of Tanaka is much higher, and does not satisfy the requirement of presently claimed invention.

Thus Tanaka fails to disclose present claim 1 and the claims dependent thereon. Further in this regard, even if Tanaka andith Tomiyama are considered together, claims 7 - 11 are not obvious.

In view of the above, reconsideration and allowance of examined now pending claims 1-9, 11-12, 14-27 and 30-33 of this application are now respectfully submitted to be proper, and such actions are hereby earnestly solicited.

If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned attorney at the local Washington, D.C., telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,


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